

**TITLE**

PROTECTIVE LAPTOP-BRIEFCASE WITH SPRINGS

**CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] This application is an U.S. national phase application under 35 U.S.C. §371 based upon co-pending International Application No. PCT/GR2003/000054 filed November 13, 2003. Additionally, this U.S. national phase application claims the benefit of priority of co-pending International Application No. PCT/GR2003/000054 filed November 13, 2003 and Greece Application No. GR 020100528 filed December 9, 2002. The entire disclosures of the prior applications are incorporated herein by reference. The international application was published June 24, 2004 under Publication No. WO 2004/052139 A1.

**BACKGROUND OF THE INVENTION****Field of the Invention**

[0002] The invention refers to a laptop-briefcase, containing plates, springs and flexible case in the interior so that the laptop is fitted correctly and remains safely in place.

**Description of Related Art**

[0003] Other bags used to transport laptops have a lining made of foamed material and other stuff. In case the bag is strongly hit, there is danger regarding the safety of the laptop.

**BRIEF SUMMARY OF THE INVENTION**

[0004] In view of the foregoing disadvantages inherent in the known types of bags now present in the prior art, the present invention provides an improved protective laptop-briefcase with springs, and overcomes the above-mentioned disadvantages and drawbacks of the prior art. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved protective laptop-briefcase with springs and method which has all the advantages of the prior art mentioned heretofore and many novel features that result in a protective laptop-

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briefcase with springs which is not anticipated, rendered obvious, suggested, or even implied by the prior art, either alone or in any combination thereof.

[0005] The advantage of this invention are the plates and springs inside ~~the bag~~ a flexible case, which absorb the energy and vibration generated by a strong hit, reducing the risk of the laptop being damaged.

[0006] In order to achieve better safety, it is advisable to use different sizes of plates, springs and material, in order to create a first and second stage of energy absorption.

[0007] In the interior case, the vertical and horizontal sides are jointed with pliable texture, so that the size of the case can be reduced and increased depending on the size of the laptop and the portable remains in place.

**BRIEF DESCRIPTION OF THE SEVERAL VIEW OF THE DRAWING(S)**

[0008] The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

[0009] Figure 1 is a perspective view of the preferred embodiment of the protective laptop-briefcase with springs constructed in accordance with the principles of the present invention.

[0010] Figure 2 is a plan top view of the present invention.

[0011] Figure 3 is a cross-sectional view of the present invention in a closed configuration.

[0012] Figure 4 is a cross-sectional view of the present invention in an opened configuration.

[0013] The same reference numerals refer to the same parts throughout the various figures.

#### **DETAILED DESCRIPTION OF THE INVENTION**

[0014] ~~The following design of the protective laptop-briefcase with springs is recommended.~~

[0015] ~~FIG. (1) illustrates the opened bag, which meets all the requirements.~~

[0016] ~~The bag consists of the exterior sides made of hard inflexible material, of the interior flexible case, of the f springs (3-4-5), of the plates (2) placed in the interior of the bag, of the interior lining made of pliable texture (7) and of the meshes (1) formed by the plates (2).~~

[0017] ~~The bag is separated in two parts. The bottom part, covering 2/3 of the bag's height, consists of the base and the sides that form an integral part. The top part (cover) covers 1/3 of the bag's height.~~

[0018] ~~FIG. 1 illustrates the sections of the interior with the metallic meshes (1), the plates (2), the small springs (3) which are incorporated to the plates (2), the springs (4) placed between the interior meshes and the exterior sides of the bag and the springs (5), which are installed only in the vertical interior sides, so that the case is flexible.~~

[0019] ~~FIG. 2 illustrates the common plan of the two parts of the bag: the bottom part (without the sides) that forms the base, as well as the top part (cover), since both parts have the same springs layout (3-4) and plates layout (2) and function.~~

[0020] ~~The laptop is placed on the created mesh (1). This mesh (1) is placed in the middle of the bottom part of the bag. The respective mesh (1) is installed in the interior of the bag's top part.~~

[0021] Mesh (1) consists of eight plates (2).

[0022] Each edge of the plate (2) incorporates a spring (3), which is adjacent to the exterior sides of the bag.

[0023] The springs (3) are helpful, since they provide the mesh with full elasticity and so the energy generated by vibration is absorbed.

[0024] In five parts of the mesh (1) are placed plates respectively (4). Four of these are situated, where three plates (2) intersect and the fifth is placed in the center of the mesh, where four plates intersect (2).

[0025] FIG. 3 illustrates a horizontal cut of the closed bag. Springs (4) between the mesh (1) and the bottom part (6) are clearly shown. Springs (4) are used for the absorption of the energy created by vibrations.

[0026] FIG. 4 illustrates a vortical cut of the opened bag. A crosswise connection of the plates (2) creates a mesh (1). Between the exterior side of the bag and the cut point of the plates (2), the spring (4) is situated.

[0027] In the space left on the right and the left side created by the crosswise plates (2), are placed the springs (5).

[0028] The springs (5) connect the exterior side of the bag with the interior side of the case. This is how the case size is reduced and increased and that is the reason why the springs stick out from the mesh (1) created by the crosswise connection of the plates (2).

[0029] The lining (7) is made of pliable texture so that the size of the interior case is reduced and increased easier.

[0030] Referring now to the drawings, and particularly to Figures 1-4, a preferred embodiment of the protective laptop-briefcase of the present invention is shown and generally designated by the reference numeral 10.

[0031] In Figure 1, a new and improved protective laptop-briefcase 10 of the present invention for securely transporting a portable computer is illustrated and will be described. More particularly, the improved protective laptop-briefcase 10 has a top cover part 12 pivotally attached to a bottom part 14 defining a recess adapted to receive a portable computer therein. The bottom part 14 includes a base 16, sides 18, and an interior flexible case 20. The interior flexible case 20 consists of an interior lining 22, a plurality of plates 24, and a plurality of springs 28, 30, 32.

[0032] The plates 24 are arranged in the base 16 to create a mesh 26, with each edge of plates 24 incorporating the springs 30 which is adjacent to the sides 16 of the bottom part 14 of the briefcase 10. The springs 30 are helpful, since they provide the mesh 26 with full elasticity, which can absorb the energy generated by vibration. The interior lining 22 is used to cover the mesh 26, plates 24, and springs 28, 30, 32.

[0033] The mesh 26 consists of eight plates 24 that cross over each other in a pattern, as best illustrated in Figure 2. Three of the plates 24 are placed between two opposite sides 18, with three other plates 24 being placed between the opposite two sides 18, thereby intersecting perpendicular to each other. The final two plates 24 are placed between each corresponding corner of the sides 18, thereby intersecting at the center of the pattern. The springs 32 are located on the base and positioned to contact the four outer corners intersection points and the central intersection point of the crossing plates 24.

[0034] Figure 3 illustrates a horizontal cut of the briefcase 10 in a closed configuration. The top cover part 12 consists of a similar interior lining 22, plates 24, mesh 26, and spring 30, 32 configuration as described above for the base 16. The interior lining 22 is

positioned flat across the bottom of the top cover part 12 in the direction of the bottom part 14. As describe-above, the mesh 26 consisting of crossing plates 24 is covered by the interior lining 22 and biased against the lining 22 by springs 32. The ends of the plates 24 are connected to the sides of the top cover part 12 by springs 30.

[0035] Each of the sides 18 further include two crossing plates 24, with the ends of each plate 24 being attached to opposite sides 18 via springs 30, thereby creating mesh 26 in all the exterior sides 18 of the bottom part 14. Spring 32 is situated between each exterior side 18 and the intersection point of the plates 24. The springs 32 are located at the intersection point of each crossing plate 24 in each side 18. Two springs 28 are positioned in each opening defined in the sides of the intersection point of plates 24 for each mesh 26 in each side 18, as best illustrated in Figure 4.

[0036] The springs 28 connect the exterior sides 18 of the bottom part 14 with the interior flexible case 20. This is how the interior case 20 size is reduced and increased and that is the reason why the springs 28 stick out from the mesh 26 created by the crosswise connection of the plates 24.

[0037] The interior lining 22 is made of pliable texture so that the size of the interior case 20 is reduced and increased easier. The interior lining 22 covers the base and side meshes 26.

[0038] While a preferred embodiment of the protective laptop-briefcase has been described in detail, it should be apparent that modifications and variations thereto are possible, all of which fall within the true spirit and scope of the invention. With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

[0039] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.